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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/556,712

11/09/2005

Kenji Suzuki

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EXAMINER

NGUYEN, HUNG

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/556,712	<b>Applicant(s)</b> SUZUKI, KENJI	
	<b>Examiner</b> Hung Henry V. Nguyen	<b>Art Unit</b> 2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 3/12/09.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 52-111 is/are pending in the application.
- 4a) Of the above claim(s) 66-85 and 90-111 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 52-55, 57, 59-62 and 86-89 is/are rejected.
- 7) ☐ Claim(s) 56 and 63-65 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. This application contains claims 66-85 and 90-111 drawn to an invention nonelected with traverse in the reply filed on October 20, 2008. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144). See MPEP § 821.01.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 52-55, 57, 59-62 and 86-89 are rejected under 35 U.S.C. 102(b) as being anticipated by Koch et al (U.S.Pat. 6,195,201).

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With respect to claims 52 and 59, Koch et al discloses an illumination system comprising all of the structures set forth in the instant claims such as: a light source (12) that emits extreme ultraviolet light (EUV); a collimator (14) located downstream of the light source; a fly's eye mirror (16, 18) located downstream of the collimator and having a multiple unit mirrors (see figure 3A) and a condenser (20,22) located downstream of the fly's eye mirror and having an emission side; wherein the illumination optical system Köhler illuminates a desired illumination area (24) on the emission side of the condenser, the illumination are including one or more illumination irregularities and at least one of the unit mirrors of the fly-eye mirror is a correction mirror having reflectivity irregularities configured to correct at least a portion of the one or more illumination irregularities in the illumination area (see col.5, lines 10-59).

As to claims 53 and 60, it is disclosed that the fly's eye mirror (16,18) has a number of correction mirrors (42), the number being one or more (see figures 3A) and a ration of the number of correction mirror (42) to the number of unit mirrors of the fly's eye mirror has a value that is according to an extent of the illumination irregularities (see figures 3A and 4A-4B and col.5, lines 60 to col.6, line 15).

With respect to claims 54 and 61, Koch et al disclose each unit mirror and correction mirror (42) has a respective reflecting surface (46) coated with a respective multilayer film to improve reflectivity of the reflecting surface to the EUL light and the multilayer film on each correction mirror has a respective distribution of number of layers across the reflecting surface, the distribution corresponding to the respective reflectivity irregularity of the correction mirror (see col.5, lines 54-56) and the facet or element 42 has dimensions of approximately seven by ninety-three millimeters (see col.5, lines 48-50).

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As to claims 55 and 62, Koch et al discloses the unit mirrors of the fly's eye mirror (16, 18) and at least one correction mirror has respective orientations at which EUV light from the light source (12) is incident at respective oblique angles of incident and the angle of incidence are within a range of total-reflection angles (see col.7, lines 61-65) and each correction mirror has a surface structure including at least one feature configured to have a distribution sufficient to define the respective reflectivity irregularities (see col.9, lines 4-15).

As to claims 86-89, Koch et al discloses a reticle (25) and a substrate (28) and a projection system (11) for projecting an image formed on the reticle onto the substrate. Although, Koch et al do not expressly disclose the claimed reticle stage and the claimed substrate stage, these elements are inherent teachings of the illumination system of Koch et al and they must be present for the system to function as intended.

#### ***Allowable Subject Matter***

4. Claims 56, 63-65 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Response to Arguments***

5. Applicant's arguments filed March 12, 2009 has been carefully reviewed but they are not found persuasive. The applicant is reminded that the claimed subject matter to examination will be given their broadest reasonable interpretation consistent with the specification, and limitations

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appearing in the specification are not be read into the claims. In re Yamamoto, 740 F. 2d 1569, 1571, 222 USPO 934, 936 (Fed.Cir. 1984).

With this in mind, the discussion herein will focus on how the terms and relationships thereof in the claims are met by the references. Response to any limitation that is not in the claims or any argument that is irrelevant to or does not relate to any specific claimed language will not be warranted.

Applicant's arguments amount to a general allegation that the claims define a patentable invention, however it is the Examiner's position that the language of the claims does not patentably distinguish them from the references. Applicant argues that "according to the specification (page 2, lines 4-7), "illumination irregularities" refer to, for example, unevenness illumination distribution and uneven light-intensity distribution occurring at the illuminated surface (reticle surface, surface of a wafer for exposure, or similar". In order to support for Applicant's position, Applicant further refers to figures 2-6 which depict various features of correction mirror used in the fly's eye mirror of the present application, then applicant states that there is nothing in the cited text of Kock directed to a fly's eye mirror having at least one unit mirror with a reflectivity irregularity. The Examiner respectfully disagrees with the applicant since there are several problems with this approach. Firstly, it is noted that is what is disclosed in the prior art and in the particular application must be considered. While the present application does refer to illumination irregularities are unevenness illumination distribution and unevenness light-intensity distribution occurring at reticle surface, surface of a wafer for exposure, but the limitations on which the Applicant relies (i.e., unevenness illumination distribution and unevenness light-intensity distribution occurring at reticle surface etc...) are not

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stated in the claims. It is the claims that define the claimed invention, and it is claims, not specifications and drawings that are anticipated or unpatentable. *Constant v. Advanced Micro-Devices Inc.*, 7 USPQ2d 1064. In brief, it appears that, the Applicant is attempting to improperly import limitations from the specification. As noted in the prosecution history of this case, Koch meets the limitations of “at least one of the unit mirrors of the fly’s eye mirror is a corrective mirror that has reflectivity irregularities configured to correct at least a portion of the one or more illumination irregularities in the illumination area, as recited in claim 52 since Kock teaches “the first reflectivity fly’s eye or mirror array has a plurality of reflective elements or mirrors that are used to form a plurality of source images ....the combination of the optical elements 20 and 22 relays the image of an aperture stop....The first and second optical elements 20 and 22 are coma corrected to preserve the uniform angular distribution for all points across the illumination field 24” (see col.4, lines 25-40).

As to claims 53-58 and 86-87, Applicant has no specific arguments regarding the rejection of these claims. Therefore, it is believed that they are not additionally patentable above and over of the patentability of independent claim 52.

Lastly, regarding claim 59, Koch et al discloses an illumination system comprising all of the structures set forth in the instant claims such as: a light source (12) that emits extreme ultraviolet light (EUV); a collimator (14) located downstream of the light source; a fly’s eye mirror (16, 18) located downstream of the collimator and having a multiple unit mirrors (see figure 3A) and a condenser (20,22) located downstream of the fly’s eye mirror and having an emission side; wherein the illumination optical system Köhler illuminates a desired illumination area (24) on the emission side of the condenser, the illumination are including one or more

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illumination irregularities and at least one of the unit mirrors of the fly-eye mirror is a correction mirror/filter having reflectivity irregularities configured to correct at least a portion of the one or more illumination irregularities in the illumination area (see col.5, lines 10-59).

With the above reasons, the rejections of claims 52-55, 57, 59-62 and 86-89 are maintained.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Henry V. Nguyen whose telephone number is 571-272-2124. The examiner can normally be reached on Monday-Friday (First Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached on 571-272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

**/Hung Henry Nguyen/  
Primary Examiner  
Art Unit 2851**

hvn  
5/28/09